

Amendments in the Claims

1. (Previously Presented) A method for monitoring the performance of a network including at least one node that communicates with the network using a transaction-based protocol, the method comprising:

monitoring characteristics of transaction-based protocol exchanges to and/or from said node; and

deriving a plurality of different components including round-trip network

latency, TCP connect processing time by calculating a time from when a SYN packet is sent by the node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time by calculating a time from when the node sends an HTTP request until a time the server replies with an initial HTTP reply, and remaining content time by calculating a time after the server replies with the initial HTTP reply until a time when the node receives a final HTTP reply from the server, in response to said monitoring; and

wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said first-mentioned node.

2. (Original) The method of claim 1 wherein the monitoring step includes monitoring SYN bit acknowledgment.

3. (Original) The method of claim 1 wherein said monitoring step includes monitoring TCP data packet acknowledgment.

4. (Original) The method of claim 1 wherein said monitoring step includes monitoring TCP slow start turnaround.
5. (Original) The method of claim 1 wherein said monitoring step includes monitoring TCP zero to non-zero window turnaround.
6. (Original) The method of claim 1 wherein said monitoring step includes monitoring TCP FIN bit acknowledgment.
7. (Cancelled)
8. (Original) The method of claim 1 wherein said monitoring and deriving steps are performed at a plurality of network sites remote from said node, or co-located with said node.
9. (Original) The method of claim 1 further including reporting said derived results.
10. (Original) The method of claim 9 wherein said reporting step comprises generating a web page.
11. (Original) The method of claim 9 wherein said reporting step includes providing a web-page-based report over said network.
12. (Original) The method of claim 1 wherein said monitoring and deriving steps are performed on a subscription basis.
13. (Original) The method of claim 1 wherein said monitoring step includes coupling a monitoring node to said network and operating the monitoring node in a promiscuous mode.

14. (Cancelled)
15. (Previously Presented) A method for subscription-based remote monitoring service, the method comprising:
- initiating a monitoring subscription over the Internet after receiving a subscription payment, including obtaining at least one network address to be monitored;
- remotely monitoring, over said network, transactions involving said network address; and
- deriving a plurality of different components including, TCP connect processing time by calculating a time from when a SYN packet is sent by the node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time, remaining content time, network latency and device latency in response to said monitoring; and
- wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said first-mentioned node.
16. – 18. (Cancelled)
19. (Cancelled)
20. (Previously Presented) A method of determining communications protocol latency including:
- monitoring TCP traffic between a server and a client; and
- using an initial exchange between said server and said client and TCP header flags to determine whether an initial HTTP reply is retransmitted; and

calculating a plurality of different components including round-trip network latency, TCP connect time, TCP connect processing time by calculating a time from when a SYN packet is sent by the node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time and remaining content time; and further including continually calculating transport-to-transport network latency to obtain minimum network latency for at least one TCP session.

21. (Original) The method of claim 20 further including using retransmission time as time to discount when calculating web server processing time.

22. (Original) The method of claim 20 further including using retransmission time as time to discount when calculating TCP connect processing time.

23. (Cancelled)

24. (Original) The method of claim 20 further including using round trip network latency as time to discount when calculating web server processing time.

25. (Original) The method of claim 20 further including using round-trip network latency as time to discount when calculating TCP connect processing time.

26. – 28. (Cancelled)

29. (Previously Presented) A method for monitoring the performance of a wireless network including at least one node that communicates with the wireless network using a transaction-based protocol, the method comprising:

monitoring particular characteristics of wireless transaction-based protocol exchanges to and/or from said node; and

deriving a plurality of components including round-trip network latency, TCP connect processing time by calculating a time from when a SYN packet is sent by the node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time, remaining content time, and round-trip network latency in response to said monitoring; and

wherein said monitoring step includes:

continually calculating network retransmission time; and

computing web server processing time and TCP connect time and the number of packets lost, said computing taking into account said calculated network retransmission time.

30. (Original) The method of claim 29 wherein said monitoring step includes:
receiving requests and responses from at least one node located remotely from said receiver on the network;
isolating features of received requests and responses and logging times associated with each; and
calculating, in response to said logging, latency associated with said network and latency associated with said node.
31. (Original) The method of claim 29 wherein said monitoring step includes:
monitoring HTTP traffic flowing between a web server and a web client over the wireless network; and
using the web server's initial HTTP reply packet as the logical dividing line for the web client to web server HTTP packet exchange,
wherein said logical dividing line is used to distinguish initial web server processing time from wireless network transport time.

32. (Original) The method of claim 29 wherein said monitoring step includes using an IP Header sequence number to help distinguish out-of-order TCP packets from retransmitted TCP data packets each carrying HTTP data.

33. (Original) The method of claim 29 wherein said monitoring step includes using an initial exchange between said server and said client and TCP header flags to determine whether an initial HTTP reply is retransmitted.

34. (Cancelled)

35. (Original) The method of claim 29 further including using an HTTP initial request and reply to determine if the content of at least one web page hosted by the web server static or dynamic.

36. (Original) The method of claim 29 further including discounting at least one retransmitted HTTP Get or HTTP' Post request from said client as web server processing time.

37. (New) A non-transitory computer-readable medium that stores instructions that when executed by a computer cause the computer to perform a method, the method comprising:

monitoring characteristics of transaction-based protocol exchanges to and/or from a node in a network; and

deriving a plurality of different components including round-trip network latency, TCP connect processing time by calculating a time from when a SYN packet is sent by the node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time by calculating a time from when the node sends an HTTP request

until a time the server replies with an initial HTTP reply, and remaining content time by calculating a time after the server replies with the initial HTTP reply until a time when the node receives a final HTTP reply from the server, in response to said monitoring;
wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said node.

38. (New) A non-transitory computer-readable medium that stores instructions that when executed by a computer cause the computer to perform a method, the method comprising:

monitoring characteristics of transaction-based protocol exchanges to and/or from a node in a network; and

deriving a plurality of different components including round-trip network latency, network connect processing time by calculating a time from when a first acknowledgment packet is sent by the node to a server until a time the server replies with a server acknowledgment packet, web server processing time by calculating a time from when the node sends a request until a time the server replies with an initial reply, and remaining content time by calculating a time after the server replies with the initial reply until a time when the node receives a final reply from the server, in response to said monitoring;

wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said node.

39. (New) A non-transitory computer-readable medium that stores instructions that when executed by a computer cause the computer to perform a method, the method comprising:

initiating a monitoring subscription over the Internet after receiving a subscription payment, including obtaining at least one network address to be monitored;

remotely monitoring, over said network, transactions involving said network address; and

deriving a plurality of different components including, TCP connect processing time by calculating a time from when a SYN packet is sent by a first node to a server until a time the server replies with a SYN acknowledgment packet, web server processing time, remaining content time, network latency and device latency in response to said monitoring;

wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said first node.

40. (New) A system, comprising:

at least one processor for processing instructions;

a network interface for communicating with a network and being operatively connected to the at least one processor;

a non-transitory computer-readable medium that stores instructions that when executed by the at least one processor cause the system to perform a method, the method comprising:

monitoring characteristics of transaction-based protocol exchanges to and/or from a node in the network; and

deriving a plurality of different components including round-trip network latency, network connect processing time by calculating a time from

when a first acknowledgment packet is sent by the node to a server until a time the server replies with a server acknowledgment packet, a server processing time by calculating a time from when the node sends a request until a time the server replies with an initial reply, and remaining content time by calculating a time after the server replies with the initial reply until a time when the node receives a final reply from the server, in response to said monitoring;

wherein said deriving step includes deriving and subtracting delays associated with processing by a further node communicating over the network with said node.